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(FOUO 10/79)

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INTERNATIONAL ECONOMIC RELATIONS

CEMA COOPERATION IN FUELS AND ENERGY

Moscow VOPROSY EKONOMIKI in Russian No 6, Jun 79 pp 92-100

[Article by A. Yakushin: "Cooperation Among the CEMA Countries in the Fuel and Energy Complex"]

[Text] The countries in the socialist community devote a large amount of attention to developing the energy management and to the problems of providing the economy with fuel and energy resources. At the 32nd CEMA Session (June 1978), in addition to other long-term specially earmarked cooperation programs (DTsPS), the participants approved a program in the field of energy, fuel, and raw materials which defines a well-coordinated strategy for the countries in the community for the long term in the branches of the fuel and energy complex.

Its basic goal is the support of the economically substantiated needs of the national economy of the CEMA countries for fuel, raw materials, and electric energy on the basis of profound technical, structural, and territorial shifts in the branches of the fuel and energy complex in each of the countries, and also on the basis of their reciprocal shipments and the development of cooperation with third countries. The most important measures in the DTsPS include the forced development of nuclear power engineering; the increase in the production of and the more effective use of the countries' own energy resources; the further development of the united electric-power systems in the CEMA countries; the increase in petroleum and gas refining, with the simultaneous reduction in their use in the form of fuel; the complete development of scientific-technical cooperation that is directed at the creation and introduction of new energy sources on an industrial scale.

The energy system in the CEMA countries is developing dynamically, without any slumps or depressions, graphically demonstrating the indisputable advantages that the planned socialist system of the economy has over the capitalist system. During the first two years of the current five-year plan alone, the production of petroleum in the member-countries of the Council for Mutual Economic Assistance increased by 55 million tons, and in 1977 it reached 564 million tons; the bulk of the increase in petroleum

production was achieved by the Soviet Union. The production of natural and casing-head gas in 1975-1977 increased by 59 billion cubic meters and came to 379 billion cubic meters; the production of stone coal and anthracite in 1977 was increased to 725 million tons, or 4 percent more than in 1975; the production of brown coal and lignite increased to 622 million tons. The production of electric power in 1977 reached 1,540 billion kilowatt-hours, or 11 percent more than the 1975 level, and 41 percent more than the present-day production of electric power in the EEC countries[1].

The rapid growth of the economy requires the considerable increase in the consumption of electric power. According to preliminary data, the consumption of electric power in the united electric-power systems of the CEMA member-countries, with a consideration of the energy system of the European part of the USSR, will increase by 1990 by a factor of approximately 2.5 as compared with the level of electric-power consumption during the current period. The production of electric power in the CEMA countries is increasing rapidly: during 1970-1977 alone, it increased from 988 to 1540 billion kilowatt-hours. It is planned over the long run to achieve a further increase in electric-power production.

The basic increase in electric-power production will be achieved by activating new energy capacities at thermal and atomic electric-power stations. On the basis of the coordination of the national economic plans in the current five-year plan in the CEMA countries, it is planned to build TES [thermal electric-power stations] and AES [nuclear electric-power stations] with an overall capacity of approximately 13 million kilowatts. In Bulgaria, the Maritsa-Vostok III TES will be built, the Varna will be expanded, and the first phase of the Kozloduy AES will be built; in Hungary, the Paks AES, and the Dunamenti and Tisza TES; in GDR [German Democratic Republic -- East Germany], the second phase of the Bruno Leuschner AES, the Bocksberg and Enschwalde TES: in Poland, the Palanec and Kozinice TES: in Czechoslovakia, AES in Jaslovski Bohunicy and Dukovany. The further development of thermal electric-power engineering in the CEMA countries will follow the path of the most effective use of the local energy resources -- stone and brown coal, lignite, and shale, the reserves of which are especially considerable in these countries, as well as the complete expansion of the specialization and cooperation in the production of power-engineering equipment.

One of the most important trends in the cooperation among the CEMA countries which have been incorporated in the DTsPS in the field of energy, fuel, and raw materials is the complete development of nuclear power engineering. It is planned that nuclear power stations with a total capacity of approximately 37 million kilowatts will be constructed on the territory of the European countries in the Council and in the Republic of Cuba, by combined efforts, by 1990. In addition, two more AES, each with a capacity of 4 million kilowatts, will be erected on the territory of the Soviet Union; these AES will supply electric power to the neighboring CEMA countries. At the present time, nuclear power stations are operating in Bulgaria, Czechoslovakia, GDR, and the Soviet Union. The construction of Hungary's

first AES is under way, and preparations are being made in Poland, Romania, and Cuba for the creation of similar projects.

In this regard it might be fitting to note that in the Western countries the widely advertised program of developing nuclear power engineering has not been given any practical implementation[2].

The Soviet Union is the world's leading country with regard to the creation of large-capacity reactors. At the present time, thermal-neutron reactors with a capacity of one million kilowatts are functioning at the Leningrad AES; in Lithuanian SSR, an AES is being built, which will be supplied with nuclear power units with an individual capacity of up to 1.5 million kilowatts. In the long run it is planned to create even more powerful reactors. The USSR is already working out the technical plan for a reactor with a capacity of 2.4 million kilowatts. The planned capacity of the largest AES in the Soviet Union, comparatively recently, reached 4 million kilowatts. However, at the present time there are indications of the possibility of creating within the near future gigantic energy complexes with a capacity of 10-12 million kilowatts[3].

It is expected that by 1980 the AES in the CEMA countries will produce approximately 200 billion kilowatts, which will cover approximately 10 percent of their total electric-power needs. By 1990 the nuclear electric-power stations in the CEMA countries will satisfy approximately 25 percent of their total electric-power needs, and their overall capacity will increase by a factor of 4-5[4]. In individual CEMA countries, nuclear power engineering will account for a considerable part of the energy capacities to be activated[5].

At the same time the expansion of the network of nuclear power stations in the CEMA countries is being delayed by many factors, the most important of which include the high capital-intensity, the long periods of time required to build the AES, and the incomplete state of resolution of a number of technical, ecological, and other problems[6]. Major expenditures involved in the creation of AES are linked not only with the use of expensive equipment, but also with the prolonged construction cycle (from 7 to 9 years), during the course of which the actual cost of construction, as a rule, considerably exceeds the computed cost. The prolongation of the periods of time required to build AES is necessitated by the creation of reliable biological protection and by the complexity and difficulty in installing various kinds of apparatus and automatic monitoring and control systems.

One of the vital problems in nuclear power engineering continues to be the problem of reducing the labor-intensity and increasing the use of prefabrication methods in the construction of AES. This problem can be successfully resolved if there is accelerated elaboration of a standard plan for an AES power unit by the joint efforts of the scientists in the CEMA countries; moreover, in the opinion of specialists, the level of prefabrication methods can be raised to 70 percent.

For purposes of the most rapid implementation of the plans set down in the area of nuclear power engineering, the CEMA countries carry out large-scale multilateral cooperation in the production of equipment for AES. The Soviet Union, which has at its disposal a large amount of experience and a production and scientific base in the creation of nuclear electric-power stations, has expressed its readiness to continue to render assistance to the CEMA countries in carrying out the planned program of AES construction. At the present time our country is developing at accelerated rates a base for the production of nuclear equipment; in particularly, the construction of the gigantic Atommash specialized plant is under way, and the capacities of other machine-building plants are being modernized and expanded.

In the European socialist countries, on the basis of the bilateral agreements concluded with the USSR for cooperation and production of equipment, instruments, materials, and spare parts for AES, preparations have also been carried out in the appropriate branches of industry. For example, in Czechoslovakia the chief base for nuclear machine building will be the Skoda Production Machine-Building Association imeni V. I. Lenin in Plzen. It is anticipated that Skoda will be, in the long term, the lead organization for shipments to the CEMA countries of nuclear reactors, steam turbines, generators, and other technological equipment. Originally, Czechoslovakian nuclear machine building will produce the VVER-440 reactors, and then will begin to produce more powerful equipment -- 500,000 and one million kilowatts. In Hungary, the Hanc Electrical Engineering Plant and the Budapest Electrical Equipment Plant will begin to product special high-voltage apparatus for AES, and another large-scale Hungarian enterprise -- Hanc-Mavag -- will manufacture large-sized pipe fittings.

For the accelerated development of power engineering in the CEMA countries a factor of no small importance is the more complete use of the hydraulic resources. An important contribution to the development of the hydroelectric power potential of Hungary, Czechoslovakia, Romania, Bulgaria, and Yugoslavia will be the implementation of the scheme for the complete use of the hyraulic resources of the Danube by means of the creation, by joint efforts, of the (Gabchikovo-Nad'marosh) GES (on Hungarian-Czechoslovakian land); the "Iron Gates II - (Dzherdap-II)" GES (on Romanian-Yugoslavian land), the Nikopol-Turnu-(Megurele) GES (on Bulgarian-Romanian land).

A new direction in the cooperation among the CEMA countries in electric power engineering is the construction on a multilateral basis of pumped-storage electric-power stations. The necessity of constructing a GAES [pumped-storage electric-power station] is determined by the creation of a network of AES and TES [thermal electric-power stations] with large-capacity power units; it is felt that GAES, being highly maneuverable electric-power stations, can be effectively used in the integrated power systems (OES) of the CEMA countries as an emergence and load reserve. When the General Scheme for the Long-Range Development of the OES was being developed, proposals were made concerning the joint construction of the Lakatnik GAES in Bulgaria, the (Predikalosek) in Hungary, the (Nevistka) in Poland, and (Dzherdap-III) in Yugoslavia.

An important part of the General Scheme is the construction of high-tension electrical transmission lines. Computations for several versions of capacity and power overcurrents have shown that in the CEMA countries the optimal version is the construction of LEP [electric-power transmission lines] with a tension of 750 kilovolts. In 1976-1980, in the national power systems of the European members countries in CEMA, LEP with tension of 400 kilovolts will be constructed, and in the western parts of the USSR, 330 and 750 kilovolts. In conformity with the Coordinated Plan for Multilateral Integrational Measures, the construction of the first high-voltage electrical transmission line, with a tension of 750 kilovolts -- the Vinnitsa-Albertirsa line -- has been completed; this line will make it possible to increase the volume of shipments of electric power from the USSR to the CEMA countries, to triple the capacity of their integrated power systems, and to obtain a tangible economic benefit from combining the load schedules and capacity reserves.

For the further expansion of the intersystem electrical connections in the General Scheme it is planned to create new high-voltage lines, with a tension of 750 kilovolts (for example, the construction of two LEP: USSR-Romania-Bulgaria and USSR-Poland-Czechoslovakia). With the construction of these LEP there will be a considerable increase in the reliability of the parallel operation of the southeastern and central parts of the OES. The creation of high-voltage electrical lines with a tension of 750 kilovolts makes it possible not only to transmit tremendous capacities (as much as 2000 megavolts to a single circuit), to concentrate power production by using large-scale power units at condensation electric-power stations and reactors with a capacity of 1000 megavolts or more at nuclear electric-power stations, but also to save considerable power capacities. For example, after the implementation of the General Scheme, the intersystem benefit will be expressed by a capacity saving of the order of 4500 megavolts, which is equivalent to the creation of two new large-scale TES.

The countries in the socialist community are expanding and deepening their cooperation in the petroleum industry, where a special place is assigned to the Soviet Union. Shipments of petroleum from the USSR to the other CEMA countries satisfy the bulk of the import needs of those countries for liquid fuel. In the current five-year plan they will receive from the Soviet Union approximately 364 million tons of petroleum, which is 1.5 times more than in 1971-1975. In their turn, the CEMA countries aid the Soviet Union in the construction of petroleum pipelines, and deliver pipes, machinery and equipment, and manpower. In order to increase the production of liquid fuel in the countries of the socialist community, specifications and requirements have been defined for the creation of the complete set of construction technology, machinery, equipment, and transportation means which are intended for the construction of petroleum and gas pipelines, and also for the prospecting of petroleum and gas deposits in various natural and climatic zones.

One of the important reserves for increasing the production of petroleum in the CEMA countries is the complete use of the achievements of scientific-

technical progress primarily in those petroleum-producing areas where the production of petroleum by ordinary methods does not provide the necessary increase in production, but, rather, has a tendency toward reduction. In this regard it is desirable to study the possibility of expanding the production of petroleum by the application of the latest methods, which increase the yield of petroleum from the strata. In the CEMA countries there is a rather large number of petroleum deposits where the unextracted petroleum reserves are from 70 to 50 percent of the total reserves. It is well known that the average petroleum yield from the strata constitutes approximately 40 percent. It can be increased to approximately 50 percent by employing second methods of influencing the stratum (flooding, hydraulic explosion, and acidification); so-called tertiary methods of production can add on 5-10 percent more. For example, experimental-industrial testing of the method of polymer flooding, which was carried out at the petroleum deposits of Bashkiria and Kuybyshevskaya Oblast, indicated that, by introducing one tone of polymer, in terms of a 100-percent concentration, one can achieve additional production of several hundreds of tons of petroleum. The use of highly effective polymer additives during petroleum drilling provides a large benefit to the national economy. For example, on the scale of the Soviet Union, an increase in the petroleum yield from the strata of only 5 percent will provide additional production of tens of millions of tons of petroleum a year.

The industrial assimilation of new methods of intensifying the petroleum production in the CEMA countries is, for the time being, being carried out slowly; their practical introduction has not been supported by the corresponding oilfield equipment, sets of machinery, or chemical reagents. The introduction of new methods of influencing the stratum in the petroleum industry can be substantially accelerated by using more broadly the capabilities provided by cooperation. Keeping in mind the fact that the CEMA countries have a considerable self-interest in obtaining an additional amount of petroleum, it is necessary, in our opinion, to unite in a number of countries the material and financial reserves, as well as the scientific potential for the creation on their territory of petroleum-drilling enterprises on deposits with a falling production or on "worked-out" areas, which enterprises will carry out petroleum production on the basis of new methods of influencing the stratum. In our opinion, the petroleum-bearing areas which are most favorable in the Soviet Union are those in the European part of the USSR -- Tataria, Bashkiria, and Kuybyshevskaya and Orenburgskaya Oblasts. These areas have been well assimilated and are provided with highly skilled personnel, and they have residual petroleum reserves and a well-developed transportation system; these factors make it possible to minimize the expenditures for the development of new producing capacities.

The cooperation among the CEMA countries in the production of petroleum with the aid of new methods of influencing the stratum in areas with falling production could be organized on a compensatory basis, with the payment for the shipments of the necessary chemical reagents and the appropriate technology to be made in the form of petroleum. The production of scarce

chemical reagents and equipment for the petroleum industry can be worked out by expanding and deepening the specialization among the CEMA countries in the corresponding branches of production, and can be taken into consideration when developing the individual subsystems of the DTsPS for fuel, energy, and machine building.

For the joint assimilation of new methods of drilling petroleum from these deposits, one can also use such a form of cooperation as the creation of joint enterprises. The many years of activity of the Polish-Hungarian Haldex joint-stock enterprise confirm the possibility and effectiveness of this solution. By using the Haldex example, at individual petroleum deposits in the USSR it would be possible to create joint enterprises where the drilling would be carried out on deposits which, practically speaking, are "worked out." The output would be distributed on an equal basis among the participating countries.

The cooperation among the CEMA countries in the gas industry is developing successfully. The construction of the gigantic Soyuz gas pipeline has been completed by joint efforts. An international collective of construction workers from the socialist countries, numbering approximately 15,000 persons, was employed in building that pipeline. The first gas has already been supplied to the consumers in the European CEMA countries. The experience in the creation of the Soyuz gas pipeline has shown that the construction of such large-scale projects by using the manpower and means of the fraternal socialist countries provides a considerable benefit in time, and makes it possible to minimize the capital investments and accelerate the rate at which the invested funds repay themselves. The providing of manpower for the integrational projects in the CEMA countries, in our opinion, is a promising form of cooperation.

Most of the CEMA countries, within the next few years, plan to increase considerably their production of stone and brown coal, shale, and lignites[7]. The development of the production of coal and other forms of solid fuel is occurring simultaneously with the technical re-equipping of the coal-producing enterprises on the basis of the complete mechanization and automation of the production process and the introduction of progressive technology. For purposes of accelerating these progressive tendencies in the coal industry, the course that is being taken is one of expanding the production of highly-productive mining equipment on the basis of the multilateral specialization and cooperation of production.

A large amount of work is being done in the CEMA agencies to determine the forecasts for development of the coal industry, the needs for solid fuel, and for mining technology. The countries' needs for basic and auxiliary equipment for the coal industry until 1990 have been developed and made generally known. On the basis of multilateral cooperation, technical tests were conducted on standardized hydraulic apparatus, and work is under way to achieve the further standardization of the assemblies used in coal-mining combines. Proposals that have been developed deal with cooperation

and reciprocal shipments of hydraulic equipment for the coal industry. In connection with the increase in the volume of strip-mining operations during the mining of stone and brown coal, there has arisen a need for the creation of heavy-duty highly-productive mining technology. Soviet and East German specialists have jointly created a new model for a walking rotor excavator with a productivity of 100 million tons of rock a year.

Following the tendencies of scientific-technical progress in worldwide power engineering, the countries of the socialist community are developing on a broader and broader scale scientific-research work involving the conversion of solid types of fuel into synthetic liquid and gaseous fuel[8]. These projects have been extended broadly in Poland and the Soviet Union, where, during the next five-year plan, it is planned to create semi-industrial units for producing synthetic gas and gasoline. Joint efforts have created the technology for refining products of coal liquefaction, with the production of high-grade motor fuel -- A-93 gasoline and diesel fuel.

The CEMA countries devote a large amount of attention to cooperation in the area of geological prospecting for new deposits of solid, liquid, and gaseous fuel. Thanks to the many years of joint labor performed by geologists, drillers, and operators, new deposits of petroleum and gas have been discovered in practically all the fraternal countries; although these deposits do not cover their growing needs for liquid and gaseous fuel, they are of great importance for the power engineering in those countries. At the present time, advanced technology of deep drilling has been assimilated, making it possible to increase both the reserves and the production of highly effective sources of energy. Highly qualified personnel have been trained. On the basis of an agreement between East Germany, Poland, and the Soviet Union, joint geological prospecting work in the search for petroleum and gas is being carried in the area of the continental shelf of the Baltic Sea, which is within the territory of the cooperating countries. In the long term it is planned to achieve a considerable increase in the volume of geological prospecting work in the search for petroleum and gas, and to expand and deepen the reciprocal cooperation in this area.

In the power balance sheet of a number of CEMA European countries it is planned to increase the share of solid fuel. The fact of the matter is that, with the increased prices of petroleum and liquid fuel, the economic effectiveness of modern thermal electric-power stations that operate on coal and other types of solid fuel is approaching the effectiveness of TES that consume petroleum and gas[9]. Therefore, the course aimed at the broader use of cheap types of solid fuel to produce electric power is of great importance for the national economy of the countries that are experiencing a shortage of liquid fuel.

In the solution of power problems, serious attention should be devoted to the measures involving the more effective use of all the power resources and especially liquid fuel. The technological processes being introduced at many enterprises in the socialist countries require considerably larger

specific expenditures of power and raw materials per unit of industrial output than in the developed capitalist countries. For examples, computations indicate that the carrying out of steps to reduce the specific expenditure of fuel to the average level of 330-340 grams of U. T. [ideal fuel] per kilowatt-hour would make it possible, for the CEMA countries as a whole (excluding the USSR), to reduce the need that thermal electric-power stations have for fuel to produce electric power by approximately 25 million tons of ideal fuel -- approximately 20 percent of its annual expenditure in 1975.

A considerable benefit can be achieved by increasing the depth of petroleum refining. It is well known that, on the average for the CEMA countries, the depth of petroleum refining constitutes approximately 50 percent, and the remaining part, in the form of mazut, is used as power fuel. At the present time this use of petroleum can hardly be characterized as being efficient and effective.

The increase in the separation of the light petroleum products in the CEMA European countries to 70 percent would make it possible to obtain an additional 15 million tons of fuel and lubricating oils per year. For these purposes it is necessary to attain a considerable increase in the capital investments in the secondary processes, and to expand sharply the production of special technological equipment, using the capabilities of the international division of labor. A large reserve for achieving greater efficiency in the fuel and raw-materials complex in the CEMA countries in the long-term view to the year 2000 is the restraining of the development of power-intensive and material-intensive production entities in the countries that are insufficiently provided with their own resources of fuel and raw materials; and their efficient location within the confines of the entire region of the CEMA countries. Considerable reserves lie in the power-technological processing of stone and brown coal varieties and shale, with the obtaining of liquid and gaseous synthetic fuel which could be used as fuel and as raw materials for the chemical industry.

Special attention in the DTsPS in the area of fuel, power, and raw materials is devoted to the expansion and the deepening of the scientific-technical cooperation among the CEMA countries. The bulk of the joint scientific-research projects in the field of power engineerings which are included in the Coordinated Plan for Multilateral Integrational Measures are carried out on the basis of multilateral cooperation. The program for joint research studies encompasses a broad circle of problems. For example, in 1977 there were joint elaborations involving the expansion in the use in the economy of units and devices for the direct coversion of chemical and renewable sources of energy; this will make it possible to save a considerable amount of organic fuel.

The planning and investigative projects involving the creation of powerful MGD [magnetohydrodynamic] generators have been accelerated. The joint research on problems of the hydrogenation and gasification of stone and brown coal varieties has moved considerably ahead. An important trend in

the scientific-technical cooperation among the CEMA countries is the study of the problems of using solar energy. The Soviet Union has completed the construction and installation of equipment at a test ground and center where research will be carried out in the use of solar energy; projects involving the processes of absorption and accumulation of the sun's energy have been completed; documentation has been developing for the production of a solar air-conditioner with a cold-producing capability of 300,000 large calories and hour and for sections of a solar desalinization unit.

The socialist countries must take into consideration the changes occurring on the world's fuel market, since the fuel and power economy of the CEMA countries is not isolated from the outside world and it reflects certain tendencies that are typical of worldwide power engineering. A. N. Kosygin, in particular, noted that "the development of our cooperation in socialist economic integration occurs against a background of a number of negative tendencies occurring within the capitalist economy, but which also, to a definite degree, are reflected in the economy of the worldwide socialist system." In the western countries in recent years, despite the development of numerous energy programs, the consumption of energy resources, especially imported ones, has by no means decreased, but, rather, has increased. The production of their own energy sources in the OECD countries continues to lag considerably behind the constantly growing needs for fuel and energy[10].

The constant escalation of the importation of petroleum by the OECD countries can lead in the near future to the next in a series of energy crises, since most of the OPEC countries do not plan their own increase in petroleum production because of the accelerating process of depletion of their reserves[11]. According to prominent experts in the field of energy from 15 countries, by 1981 the capitalist countries will encounter an acute shortage of petroleum if Saudi Arabia alone limits its production within the confines of 450 million tons a year. But if Saudi Arabia increases petroleum production to one billion [1000 million] tons, this can postpone the problem of an acute shortage of liquid fuel by only eight years. However, the experts commented in their report, "Saudi Arabia, desiring to preserve its very valuable resources and having no need for money, does not have any economic incentives for the further expansion of petroleum production."

If disproportions should arise between the production and consumption of petroleum in the capitalist world in the early 1980s, substantial changes will also occur in the prices of liquid fuel. In 1977 the price of petroleum on the world market was $90-95 per ton; by 1990, according to the forecasts of Western experts, it can increase, chiefly under the influence of the inflationary process, by a factor of 2.5-3 and can reach the level of $230-280 per ton.

In this regard one cannot fail to note the completely different, fraternal nature of the foreign-economic ties among the CEMA countries, which manifests itself with particular clarity when the contractual prices of

petroleum are being formed. L. I. Brezhnev indicated that the CEMA countries, relying upon the advantages of socialism, can approach the solution of price questions in a socialist manner, striving to assure that the economy of the fraternal countries is protected as much as possible from the pernicious effects of the crisis in the world of capital.

Whereas in 1973 the worldwide level of prices of petroleum increased by a factor of 4, the contract prices in the reciprocal trade of the Soviet Union with the fraternal countries did not change either in 1973 or in 1974, and it was until 1975, on the unanimous decision of the CEMA countries, that the price of petroleum began to rise, but even at the present time it still remains 25-30 percent below the level of the world prices. The contract prices of petroleum in the reciprocal trade of the CEMA countries are formed on the basis of the princes on the world market during the past five years. This internationalistic solution of the question of the prices of the commodity which is in shortest supply in the world assures a real mutual advantage both for the producers and the consumers of petroleum in the CEMA countries, and makes it possible more accurately to reflect the changes occurring in the worldwide power economy, and to provide an incentive for the processes directed at the more effective and more economical use of liquid fuel.

At the present time, favorable conditions have formed for the expansion and deepening of the cooperation that the CEMA countries have with the developed and the developing capitalist countries in various areas of the fuel and energy complex. For example, the CEMA countries could render assistance to the developing coun-ries in the carrying out of geological prospecting projects, the increase in the production, refining, and transportation ofenergy resources, and in the development of the network of hydraulic, thermal, and nuclear electric-power stations. For example, when specialists from the socialist countries provided assistance in countries which, in the opinion of experts in the petroleum cartel, were so "unpromising" with regard to petroleum and gas as India, Syria, etc., deposits of petroleum were discovered there and the production of "black gold" in those countries increased significantly.

It would be desirable if the cooperation between the CEMA countries and the developing countries were expanded not only in the area of producing highly effective energy carriers (petroleum and gas), but also in the production of stone coal. According to computations made by foreign economists, the total reserves of stone coal in the developing countries come to 45 billion tons[12]; this exceeds by 100 times the annual consumption of energy in those countries. The expansion of the cooperation between the CEMA countries and the developing countries in the stone-coal industry would make it possible for the CEMA countries to obtain, in the form of compensation for their assistance in the creation of new capacities for the production of solid fuel, considerable amounts of coal for coking and energy purposes[13].

The mutually advantageous relations that the CEMA countries have with the developing countries should be constructed on a collective basis by

coordinating the actions and planned decisions; this will make it possible to reduce the unproductive losses and will exert a desirable influence upon the overall effectiveness of that cooperation. One should also think a bit about developing, in the CEMA countries, separate exporting production entities for producing highly productive complete equipment, science-intensive and labor-intensive industrial output that conforms to the requirements of the worldwide standards and that is capable of withstanding the competition of the western countries.

The expansion of the cooperation that the socialist countries have with the industrially developed capitalist countries in the branches of the fuel and energy complex, in our opinion, should be developed on the basis of the foreign relationships that have formed, chiefly on the basis of compensatory agreements. This form of cooperation is at the stage of development and has far from exhausted its capabilities in the matter of expanding the production, transportation, and processing of energy resources.

The new tasks that have been presented to the CEMA countries in the implementation of the long-term specially earmarked cooperation programs, unlike the western energy programs, are not declarations. The earmarked programs are planning documents, and their content will become part of the national plans of the countries in the community for 1981-1985, as well as part of the Coordinated Plan for Multilateral Integrational Measures. On the basis of the earmarked programs, there will be extensive work in coordinating the national economic plans of the CEMA countries.

At the same time there will be a continuation of the work involved in the detailed elaboration of the questions and problems that are posed in the programs. A. N. Kosygin noted that "the draft versions of the earmarked cooperation programs in the field of fuel, energy, raw materials, foodstuffs, and machine building, which versions have been submitted for consideration by the session, still state the overall contours of the solution of the problems, and we still will have to determine the material and financial resources that are necessary for their implementation, and will have to establish the self-interestedness and the volume of participation of the countries in the implementation of the apppropriate measures." There is still a lot of work ahead, but there is no doubt that the implementation of the long-term specially earmarked program for cooperation in the area of energy, fuel, and raw materials, will strengthen even more the community of countries in the Council for Mutual Economic Assistance and will accelerate their movement ahead in the construction of socialism and communism.

FOOTNOTES

1. See EKONOMICHESKOYE SOTRUDNICHESTVO STRAN-CHLENOV SEV, No 3, 1978, pp 35-37.

2. Whereas, according to the 1975 forecasts, the installed capacity at AES in the EEC countries by 1985 was supposed to increase to 200 million kilowatts, at the present time those figures have been more than halved,

and the installed capacity at nuclear electric-power stations by the indicated deadline is being determined only at 91.4 million kilowatts. An analogous reduction in the planned construction of AES occurred in the United States: instead of 200 million kilowatts of installed capacity at AES by 1985, it is now planned to achieve only 152 million kilowatts ("World Energy Outlook," OECD, Paris, 1977, pp 43, 50, 51.)

3. See EKONOMICHESKAYA GAZETA, No 7, 1978, p 2.

4. See PLANOVOYE KHOZYAYSTVO, No 11, 1977, p 53.

5. For example, in Bulgaria in 1990, AES will produce 50 percent of the total electric power; in East Germany, almost 30 percent; in Romania, 25 percent; and in Czechoslovakia, as early as the current five-year plan, the nuclear electric-power stations will account for one-fourth of the total increase in the production of electric power (see SOTSIALISTICHESKAYA INDUSTRIYA, 11 January 1976).

6. For example, in the United States, where the production of powerful AES on a broad scale has been well set up, the specific capital investments in nuclear electric-power stations with a capacity of 1000 megawatts in the early 1970s were approximately $30 per kilowatt more than at TES of equal capacity which were operating on organic fuel. In 1974 the gap exceeded $100 per kilowatt, and by the early 1980s it will increase to $170 per kilowatt (see MIROVAYA EKONOMIKA I MEZHDUNARODNYYE OTNOSHENIYA, No 8, 1978, p 61).

7. In particular, in Bularia, during the 1975-1980 period, the production of solid fuel will increase from 28 to 38 million tons; in Romania, from 28.2 to 56.0; in Mongolia, from 2.7 to 4.9; in Czechoslovakia, from 114 to 125; in East Germany, from 247 to 250 million tons. In Hungary and Poland, as a result of the depletion of a number of coal deposits, the level of coal production in this five-year plan has been stabilized and in 1980 it will constitute approximately 25.0 and 247.5 million tons, respectively.

8. In the western countries, when forecasts of the energy management are being elaborated, the possibility of the broad application of gaseious and liquid fuel made from coal is taken into consideration. At the present time, the large-scale use of synthetic fuel in those countries is being restrained by the large lump-sum and current expenditures involved in production and by the problems of protecting the environment. For example, a unit that can produce gasoline from coal has been created in the United States (the unit processes 30,000 tons of coal a day and produces more than 8480 tons of gasoline and 1.7 million cubic meters of synthesized gas a day), but the costs for producing the gasoline came to $177.80 per ton, whereas the world prices of gasoline were $130-140 per ton. It is felt in the United States that by 1985 the

final work in developing the technological processes and the industrial production of synthesized types of fuel will be completed, and by 2000 it is planned to produce from coal and shale approximately 490 million tons of synthesized fuel a year and to be freed of the necessity to import petroleum (OIL AND GAS JOURNAL, 3 October and 14 November 1971; BIKI [BULLETIN OF FOREIGN COMMERCIAL INFORMATION], 10 December 1977).

9. In the Soviet Union the cheapest electric power in the European part of the country is produced at the Baltic-area TES, which operate on shale (see PLANOVOYE KHOZYAYSTVO, No 9, 1976, p 5). In the EEC countries the cost of one kilowatt-hour produced at a TES with a capacity of 600,000 kilowatts, operating on mazut, is $0.033, and at a TES of equal capacity, using coal, $0.027 (see BIKI, 24 November 1977).

10. The importation of petroleum and petroleum products by six developed capitalist countries alone (United States, Japan, West Germany, France, Great Britain, and Italy) increased from 814 million tons in 1970 to 964 million tons in 1975, and in 1977 reached 1.174 billion [1174 million] tons (INTERNATIONAL ECONOMIC INDICATORS, U. S. March 1978).

11. According to data in the CIA report "The International Energy Situation in 1985," the production of petroleum in the OPEC countries, other than Saudi Arabia, will increase only from 1340 million tons in 1977 to 1375-1470 million tons in 1985.

12. See EKONOMICHESKAYA GAZETA, No 11, 1978, p 21.

13. For more details, see S. M. Lisichkin, "Energeticheskiye resursy mira [The World's Energy Resources], Izdatel'stvo Nedra, 1977.

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INTERNATIONAL ECONOMIC RELATIONS

CEMA RELATIONS WITH THE WEST

Moscow VOPROSY EKONOMIKI in Russian No 6, Jun 79 pp 112-119

[Article by V. Ivashkin and V. Panchenko: "Foreign Economic Relations Between the CEMA Countries and the Capitalist States"]

[Text] The foreign economic relations of the CEMA countries have become one of the important factors in the intensification of their economic development, a factor which has a direct effect upon increasing the effectiveness of social production, the acceleration of the progress of science and technology. This is a completely natural result of the economic and political success achieved by the fraternal countries in the course of implementing the Comprehensive Program for the Further Deepening and Improvement of Cooperation and the Development of Socialist Economic Integration.

On the basis of the economic growth of the countries in the socialist community and the reinforcement of the reciprocal cooperation, during recent years there has been a considerable expansion of their foreign economic ties with the western countries also. In addition to the traditional foreign trade, the production, scientific-technical, and credit-and-financial relations among them are also growing, as well as the exchange of services in the area of construction, transportation, communication, tourism, etc. Broader and broader use is being made of such forms of foreign economic transactions as the buying and selling of licenses abroad, and agreements on a compensatory basis; joint societies with the inclusion of capitalist firms are being created; and industrial cooperatives are being developed.

The international socialist division of labor, primarily among the CEMA countries, exerts a greater and greater influence upon the worldwide economic ties. At the present time the foreign-trade turnover per capita of population in the CEMA countries exceeds by approximately 10 percent the average world level; they account for approximately 10 percent of the world commodity turnover, and that share has a tendency to increase[1]. The CEMA countries have become very large-scale world exporters of various types of industrial output, including machine building. This pertains primarily to the Soviet Union, East Germany, and Czechoslovakia; Bulgaria, Hungary, Poland, and Romania are exporting to foreign markets high-grade modern output in greater and greater volumes.

At the same time, by means of shipments from the developed capitalist countries, the CEMA countries by the mid-1970s covered as much as 40 percent of the total imports of foodstuffs, 25 percent of the raw materials, machinery, and transportation equipment, and more than 45 percent of their import of chemical commodities. However, despite the major purchases in the West of various kinds of output necessary for the national economy of the CEMA countries, their economic development is determined primarily by the domestic capabilities of each of them and by the reciprocal cooperation in the process of the international socialist division of labor in conformity with the Comprehensive Program for Socialist Economic Integration. Thus, the share of the reciprocal trade among the CEMA countries is approximately three-fifths of their foreign commodity turnover.

A typical feature of the foreign-economic ties maintained by the Soviet Union and the other CEMA countries during the 1970s has been not only the deeper inclusion of their national economic complexes in the international division of labor, but also the orientation on the long-term and large-scale nature of the economic relations with the capitalist countries. In this regard, something that has taken on particular importance is the Soviet-Finnish document which was signed in Moscow on 18 May 1977 and which contains a long-term program for the development and deepening of the trade-and-economic, industrial, and scientific-technical cooperation between both countries until 1990. Thus, for the first time, states with different socioeconomic systems defined the chief trends that would be followed by their cooperation for such a prolonged period and in such a broad complex. The same approach taken by the Soviet Union to its foreign economic ties found its reflection in the Joint Declaration and Agreement concerning the development and deepending of the long-term cooperation between the USSR and West Germany in the area of economics and industry, which were signed in May 1978 during L. I. Brezhnev's visit to West Germany. The agreement affects a large circle of questions involving cooperation in various spheres of material production in such branches as machine building, including transportation machine building, metallurgy, chemistry, electrical engineering, the electronic industry, and the mass consumer goods industry. It is assumed that from 1976 through 1980 one can expect a doubling of the commodity turnover in the reciprocal trade of the USSR and West Germany, as compared with the previous five-year period.

Various relations on a long-term and stable basis are developing between the SOviet Union and France. In 1975-1978 the volume of trade between the two countries constituted more than 6 billion rubles, that is, was more than double the volume in the previous five-year period. New broad prospects for Soviet-French cooperation are opening up on the basis of the Long-term Program for the deepening of the economic, industrial, and technical cooperation between the USSR and the French Republic during the 1980-1990 period, which was signed in late April 1979 in Moscow during the official working visit to the Soviet Union by French President V. Giscard d'Estaing.

The improvement of the forms and methods of cooperation between the CEMA countries and the capitalist states, the increase in their effectiveness, the

reciprocal accounting of the principles of the international division of labor and the conditions of the corresponding markets in the two systems greatly promotes the further development of their economic ties. The transition to more complicated and more varied forms of economic, scientific-technical, and industrial cooperation has become possible and necessary as a result of the attainment during recent years not only of a quantitatively new level of socialist international division of labor, but also a considerable expansion of the reciprocal ties between the CEMA countries and the developed capitalist states, primarily in the area of foreign trade. Although the CEMA countries occupy only 5 percent of the overall trade of the western states, and the latter occupy only 30 percent in the total trade of the countries in the socialist community, their reciprocal satisfying of the needs for a number of commodities that are important for the countries' economy constitutes a rather considerable share. The CEMA countries have become important suppliers to the industrially developed capitalist states of various industrial and raw-material commodities that are vitally necessary for their economy. This pertains, in particular, to the countries of Western Europe. For example, during the first half of the 1970s, the export from the Soviet Union during individual years covered the import needs, for example, of Finland for petroleum and petroleum products by almost 70 percent, and for timber, by 60 percent; Sweden's needs for petroleum and petroleum products by almost 70 percent, and chrome ore by 70 percent; Great Britain's need for nickel by 25 percent; Austria's need for pig iron by 44 percent; France's need for chrome ore by as much as 40 percent, for mazut by 35 percent; Greece's need for pig iron by 60 percent, for lumber by 38 percent; etc.[2] According to computations, the shipments of Soviet natural gas will satisfy approximately 11 percent of the needs of West Germany, and 10 percent of France's needs.

On the worldwide capitalist market there continues to be a steady demand for various kinds of output from the extractive and processing branches, the machine building of the CEMA countries, including metallurgical and power-engineering equipment, metal-cutting machine tools, tractors and trucks, equipment for nuclear electric-power stations, aircraft, ships, bearings, etc. Capitalist companies buy their licenses, and purchase their technology for the production of industrial output that conforms to the best worldwide models.

The self-interestedness of the capitalist states in the development of foreign-trade and other forms of foreign economic ties with the CEMA countries which have a stable, depression-free domestic market that develops according to plan, is explained not only by the increased demand for petroleum, gas, and various kinds of raw materials as a result of the critical energy and raw-materials situation in the West. The stability of the commodity exchange greatly contributes to the continuous technological functioning of a number of the leading branches of industrial production in the capitalist countries. The companies in western states acquire, in the person of Soviet foreign-trade organizations, reliable partners whose financial capabilities do not cause any doubts; this is one of the important factors when establishing and developing business relations. There has also been an increase in the export

capabilities of the foreign companies, and this, on the one hand, gives them new income from sales and, on the other hand, guarantees for a prolonged period of time the employment rate of the workers and engineer personnel at their enterprises.

Many Finnish economists state that the large-scale Soviet-Finnish projects, as, in general, the economic cooperation between the two sides, have been contributing noticeably to the overcoming of the consequences of the critical situation with regard to the capitalist economy which has also affected Finland. They state that Soviet orders today provide work for more than 100,000 Finns[3]. As is noted in the press in the western countries, as a result of the development of the trade-and-economic cooperation among the countries in the two world systems, many hundreds of thousands of workers in France, Italy, and West Germany will be able to continue working. According to our tentative estimates, the volume of trade between East and West is currently providing the opportunity to work to no less than 2 million persons at enterprises owned by the firms and companies of the industrially developed capitalist countries.

The state monopoly of foreign trade in the socialist countries makes it possible for their partners to obtain such economic advantages as are impossible under conditions of the relations that are typical of the market economy, with its uncontrollable situations. For example, western firms, when entering into business relations with state foreign-trade associations, obtain access, by way of them, to the entire domestic market of the corresponding socialist country for the particular commodity and are freed, in particular, of the necessity to expend considerable amounts of money to bring their commodities to the consumer markets. One should also not forget that the expanding export to the CEMA countries which have a demand for the most highly-productive equipment serves as an important condition for technical progress, the increase in the capacities in a number of traditional and new branches of industry in the capitalist states, and the developing ones under conditions of the acute competitive struggle for the world's commodity markets. The sharp aggravation of the contradictions among the imperialist countries, the fierce struggle among the basic centers of the economic system in the West, and the deepening of the antagonisms in the modern capitalist world economy are increasingly forcing the business circles and the governments of the western countries to seek ways to create and expand the trade-and-economic cooperation with the CEMA countries.

The industrial-economic relations between the CEMA countries and the western states include, in addition to commodity turnover, a broad circle of economic ties that encompass various economic, organizational, legal, trade-political, and financial measures both of a bilateral and a multilateral nature. In addition to the application of such forms and methods of foreign-trade operations, which have already become customary ones, as direct buying-selling transactions, stock exchanges, commodity exchanges, auctions, trade via agent firms, etc., one sees the broader and broader

extension of new forms and methods that go far beyond the confines of commodity-trade relations[4]. The national economic benefit leading to an increase in the national income and obtained, as is well known, not in the sphere of commodity exchange and not in circulation, but, in particular, as a result of the immediate influence exerted by the foreign-economic activity of the CEMA countries upon material production and scientific-technical progress -- that is the distinguishing feature of the development of the new forms and methods of their foreign-economic ties with the capitalist countries. They are improved not only on the basis of the intergovernmental long-term agreements governing the economic, industrial, and scientific-technical cooperation with the western countries, but also the agreements dealing with long-term trade-and-industrial cooperation on a compensatory basis; understandings with foreign firms concerning the creation of joint enterprises (joint societies) with the participation of Soviet organizations; agreements dealing with the reciprocal participation in construction of various projects in third countries; various kinds of agreements pertaining to currency and credit, the rendering of financial assistance in the fulfillment of the achieved agreements; etc.

The concluding of intergovernmental long-term (for 10 years or more) agreements dealing with economic, industrial, and scientific-technical cooperation with the western countries, which agreements create a favorable basis for industrial cooperation with capitalist firms and companies, is typical of all the CEMA countries. There are currently more than a hundred such agreements. They are linked with the implementation of large-scale projects, shipments of equipment for complete installations and enterprises, the construction of individual projects, technical and financial assistance, and the execution of the coordinated production programs, and also include the corresponding economic-organizational measures. It is also important that this kind of industrial cooperation encompasses not only the intrabranch, but also the interbranch cooperation, and both the production and the sale of the manufactured output. Recently there has been an acceleration of the rates of development of industrial cooperation between East and West, in which practically all the European CEMA countries have been taking part. The number of agreements in the individual branches of the economy where the cooperation will be carried out and where projects are planned on the basis of that cooperation has exceeded 1,200[5].

There has been broad development of industrial cooperation between the western countries and Hungary, chiefly with firms in West Germany, France, and Austria, and, to a lesser degree, Sweden, England, and Switzerland. The basic spheres of action of the cooperative agreements between Hungary and those countries have been machine building, the chemical industry, motor vehicle construction, pharmaceuticals, the production of electronic computers and communication means, and the optical industry. For example, a contract between the Krupp concern and the Cepel machine-building enterprise provides for the joint development and assimilation of the production of machine tools with programmed control. The first agreements in the field of agriculture, the food industry, and construction have also been concluded.

The industrial cooperation between Romania and the western firms is being carried out basically along the line of the joint construction of production projects on Romanian territory. Romanian organizations assume the planning and construction of the enterprises, and their western partners provide the know-how and equipment.

Cooperative ties are also carried out between the Polish Metalloexport and the West German Wewag firm in the area of machine-tool production (the contract signed is for 10 years); between the Centrozap Association and the Krupp concern for the exchange of rolled metal of various quality and sizes; between Polish enterprises and the Reinstal-Henschel concern in the area of producing diesel engines; between the Polish Universal foreign-trade enterprise and the Grundig firm for the production of magnetic tape recorders, with sale in Poland and other CEMA countries. On the basis of contracts concerning subshipments, the French Sotex firm obtains from Polish enterprises transmissions for installation on the textile machinery that it is producing.

As a variety of the production of output on the basis of a unified commercial enterprise, one can mention the trade society in Switzerland that was founded by the Bulgarian Mashinoeksport foreign-trade enterprises, and the Italian (Offechine mekkanike Goetano Dzokko) firm. This society functions for the purpose of selling polishing machines on foreign markets. Bulgaria delivers uncompleted machine tools, the value of which constitutes 40 percent of their total value, to the Italian firm; the latter adds the final components and transfers them to the trade society in Switzerland, which then sells them.

Various forms of industrial cooperation with western countries with the aim of increasing the volumes of reciprocal trade in technology and the expansion of the scope of cooperation in the joint elaboration of the fundamental problems of science and technology which are linked with the coordinated use of their results by means of selling the new output on the domestic and foreign markets, are used by East Germany and Czechoslovakia. It is important that the CEMA countries begin acting to a greater and greater extent on the basis of industrial cooperation in the role of producers and suppliers to the capitalist countries of finished output.

The Soviet Union has also accumulated a definite amount of experience in industrial cooperation with the firms in the capitalist countries. For example, jointly with the West German (Gil'demayster und kompani) firm, new models of machine tools are being elaborated, for the purpose of producing them on a cooperative basis in the USSR and West Germany. Soviet enterprises manufacture some of the equipment for a metallurgical combine that is being built in the south of France; participate in the modernization of French petroleum refineries; and have completed the shipment of the largest press in Western Europe for the stamping of parts from aluminum alloys, steel, and titanium.

The new capabilities for expanding the export of the CEMA countries are being opened up by the creation of trade-and-production societies in the

capitalist countries. The European socialist countries have already begun the active use of this form of cooperation. By way of an example one might mention the joint Soviet-French Slava society. The Soviet side (V/O [All-Union Association] Mashpriborintorg) ships to France the parts and mechanisms of Soviet-produced timepieces, and the French side produces the dials and cases. The assembly of the finished article is carried out in France. The Slava firm combines production activity and trade, selling the timepieces, optical and measurement instruments, and other articles of Soviet and joint production. The Soviet Union has concluded with firms in the western countries dozens of cooperative agreements; however, there are still large unused reserves in this area. Taking into consideration the capabilities and needs of the Soviet national economy, their scope is not yet large.

From the late 1960s and early 1970s, something that has become widespread has been the creation of joint (combined) societies with the participation of Soviet organizations abroad and the carrying out, by way of them, of foreign-trade, transportation, trade-and-production, banking, and other operations. In early 1970 there were already 60 trade companies, and, in addition, a number of other combined societies, including transportation and banking, operating in Australia, Austria, England, Belgium, Holland, Italy, Canada, Norway, the United States, Finland, France, West Germany, Sweden, and Japan. Many Soviet foreign-trade associations that operate on the basis of cost accountability take part in their activities; they encompass a broad circle of branches of the Soviet economy. Experience attests to the effectiveness of this form of cooperation, the reserves of which lie primarily in the expansion of trade activity.

Large capabilities for the use of this form of trade also exist in other CEMA countries. The European CEMA countries participate in more than 400 joint trade and trade-and-production societies in Western Europe alone. For example, the Polish foreign-trade association and the West German Internationale Baumaschinefabrik AG have created the joint Depolma firm, which carries out export-import operations with equipment for the food industry, as well as steel structurals and articles. The large-scale West German Salzgitter concern has also become a share-holdern in this society. The Hungarian Medikor foreign-trade enterprise and several English firms founded in Englan two joint enterprises (Medicharge and (Medibays)) for the production of rechargeable storage-battery elements and their export to many countries of the world.

In the economic relations of a number of the European socialist countries (Hungary, Romania, Yugoslavia), one form of cooperation that has become widespread is the creation of joint societies with the participation of the firms of capitalist countries on the territory of the socialist states. Practically all these joint societies are production societies. The employed system of measures has been called upon to assure the primacy of socialist principles in their activity; provision has been made for monitoring by state agencies of the creation and functioning of the joint societies; a lesser share (up to 50 percent) of the participation of the

foreign partner in the assets has been established; the branch and territorial trends taken by the capital investments are regulated; etc. For the most part, the western partners retain the functions of control in technical matters, as well as sales on foreign markets.

Something that is taking on very great importance for the development of the industrial cooperation between the CEMA countries and the western countries is the unification of the efforts for the construction of industrial enterprises on the basis of compensatory transactions. They have made it possible to create on the territory of the countries in the socialist community extensive industrial complexes and projects with the use of foreign credit. These were specifically mentioned at the 25th CPSU Congress by L. I. Brezhnev as new forms of foreign-economic ties "which go beyond the confines of ordinary trade, greatly expand our capabilities, and, as a rule, yield the greatest benefit. I have in mind, in particular, compensatory agreements, when new enterprises that completely belong to our state are created in cooperation with foreign firms. We are granted credit, equipment, and licenses, and we repay them by part of the output that is produced at these and other enterprises." Thus, the West German Salzgitter and (Bokhako) firms participate in the construction in Poland of an enteprise for the production of fertilizers. In exchange for the equipment and the know-how, the Polish side will pay in shipments of fertilizers. On the basis of a transaction with France, a plant for the production of telephone cable is being built in Poland; partial payment for the services and shipments of equipment will be made by the new enterprise's output. Other CEMA countries have also conclude in one form or another similar compensatory agreements with western firms.

The agreements on a compensatory basis between the Soviet Union and the capitalist companies are of a long-term and large-scale nature. They stipulate the creation in the USSR of new capacities intended for the production of output both for export and for the domestic market, and the establishment of cooperation for ten years or more. Such agreements mention the import of equipment and materials for the creation of production capacities.

No joint enterprises whatsoever are being created on terms of compensatory agreements: the Soviet side remains the owner of the project, and the foreign firm provides the credit, delivers the equipment, and receives a guarantee of shipments of the commodities that interest it for a prolonged period of time. The foreign firm does not receive the right to participate in the profits from the use of the created production capacities. Up until the present time the Soviet Union has concluded agreements and contracts with firms in West Germany, France, Italy, Great Britain, Austria, the United States, and Japan for the delivery to the USSR of equipment for construction on a compensatory basis of more than 60 industrial projects in the chemical, gas, metallurgical, coal, timber, paper-and-woodpulp, and other branches of industry.

The Soviet Union, in carrying out these agreements, obtains the opportunity

to develop at more rapid rates the individual branches of industrial on the most up-to-date technical basis, to reduce the currency expenditures for the purchase of equipment, to give accelerated efforts to resolving a number of production and scientific-technical tasks involving the introduction of the new technology into the national economy, and to expand and facilitate the sale of domestically produced output on the foreign markets on a long-term and stable basis, etc.

The activation of compensatory projects, 70-80 percent of the output of which will, according to plan, be channeled to meet the needs of the national economy, will greatly promote the solution of the tasks confronting the Soviet economy. For example, the assimilation of the timber resources of the Far East and the coal deposits in Southern Yakutia is beginning, in cooperation with Japanese firms and banks. The carrying out of simply the coal project provides the Soviet Union with the capability of paying off within short periods of time the obtained credit amounting to 300 million rubles and, in addition, to obtain currency in the amount of approximately 3 billion rubles[6].

An agreement has been concluded with France, dealing with the delivery to the USSR of equipment for the production of polystyrene and the exporting of the manufactured output. An agreement has been achieved with West German firms, dealing with cooperation on the basis of the Kursk iron-ore deposit; the cooperative venture involves an electrometallurgical combine for the production of 5 million tons of metallized pellets by the method of direct reduction of iron and approximately 2.7 million tons of high-grade plate and shape steel annually. A contract has been signed with the British CJB firm for the shipment of equipment for the production of high-pressure polyethylene; that equipment will have a capacity of 200,000 tons a year and will be supplied on the basis of a license from the Union Carbide firm (United States). According to the terms of the agreement, that firm will be shipped polyethylene on a long-term basis. Compensatory agreements with the United States are of no small importance. Trade-and-economic relations between our countries are taking on tremendous political importance in the materialization of the detente and the implementation of the principles of the peaceful coexistence of states with different social systems.

One of the first and most important general agreements with American firms was the signing of an agreement with the Occidental Petroleum Corporation. It stipulates the creation in the USSR of a complex for the production, storage, and transportation of chemical products and for shipments from the United States of superphosphate acid, and shipments from the USSR of ammonia, carbide, and potassium chloride. An agreement has also been concluded with the Philip Morris firm, in conformity with which the USSR will provide eastern varieties of tobacco, and the United States will provide the USSR with agricultural machinery, equipment, and chemicals for the purpose of growing American-type Virginia and Burleigh tobaccoes in Moldavia.

Unfortunately, the different trade-and-credit limitations employed by the United States are hampering the development of Soviet-American trade-and-

economic cooperation. As is well known, representatives of the U. S. business world and broad circles of American business have repeatedly stated that they have an interest in developing business relations with our country and have stated that they are in favor of eliminating the artificial barriers erected on the path of the mutually advantageous and completely equal cooperation by opponents of the detente. It is in this direction that the U.S.-Soviet Trade and Economic Council is developing its activities; this council includes 280 American firms which produce approximately 25 percent of the gross national product in the United States. The total value of 28 projects involving business cooperation which are currently being considered by the interested firms and organizations on the two sides with the assistance provided by the council comes to $20 billion. The four years that have passed since the passage of the provocational Jackson-Vanick Amendment to the bill governing trade, which amendment represented an attempt to make the development of economic ties conditional upon interference in the domestic affairs of the Soviet Union, have indicated that it is the American side that has suffered from it. The negative balance of trade in the United States is currently $35 billion, and under these conditions it is becoming increasingly difficult for the American administration to disregard the demands of the country's business circles to remove the discriminatory obstacles to trade between the United States and the Soviet Union.

A survy carried out among 250 large-scale representatives of the U.S. business world indicated that most of them are in favor of the development and deepening of the trade-and-economic ties, inasmuch as this conforms to the interests of both states, and contributes to the solution of many of the problems of the American economy. At the same time those who were thinking of creating a "vacuum" for Soviet import orders proved to be seriously mistaken. At a time when American firms are not implementing many advantageous proposals made by the Soviet side, the foreign-economic exchange between the Soviet Union and the other industrially developed countries, such as West Germany, France, Italy, Great Britain, and Japan, is growing. According to the most modest evaluation, the total value of the contracts that were signed by Soviet foreign-trade organizations with American firms, but which have remained unfulfilled at the fault of the United States, in recent years has constituted approximately $3 billion.

At the present time American companies have prepared proposals dealing with large-scale long-term cooperation with the Soviet Union in the petroleum, motor-vehicle, textile, garment, chemical, and other branches of industry. A new compensatory agreement dealing with the expanded production of soft drinks in the USSR has been signed with Pepsico; the Organizing Committee of "Olimpiada-80" [1980 Olympic Games] has signed with the Coca-Cola company a contract relative to the sale of Coca-Cola at the locations of the sports encounters during the Olympic games in the USSR; negotiations are underway with regard to long-term cooperation in the production of instant tea in the USSR, and in research projects in the field of production of edible protein products.

However, the state of Soviet-American trade-and-economic cooperation is still a long way from the use of its real capabilities. L. I. Brezhnev, speaking in the Kremlin at a dinner on the occasion of the holding of a session of the U.S.-Soviet Trade and Economic Council in Moscow in December 1978, noted that the preliminary plans for the next USSR five-year plan stipulate cooperation with firms in the industrially developed western countries in a number of major projects. "We are in favor of the participation of American firms in them also," L. I. Brezhnev said, "if they offer acceptable commercial and other terms. But only the elimination of the discrimination on the part of the United States will make possible a considerable and stable growth of our trade with you."

As has been confirmed by practice, the firms in the developed capitalist states receive from the compensatory transactions with socialist countries large commercial advantages, inasmuch as they are provided, on a long-term and guaranteed basis, with the necessary raw and other materials and other industrial output, have long-term orders for the manufacture of machinery and equipment, industrial output, and shipments of consumer goods, and increase the export of their own output, and, in addition, increase the employment rate at their own enterprises. Foreign banks get back the funds that have been granted on credit, as well as definite amount of interest on that credit.

At the same time it should be noted that,as the economic ties between the states in the two socioeconomic systems expand, there is an intensification of the resistance on the part of international reactionary forces to the processes of development of a businesslike, stable, long-term cooperation. As was emphasized at the 25th CPSU Congress, the development of international relations which at the present time is, on the whole, positive, is complicated by the fact that in the United States, West Germany, and other capitalist states there are influential forces which have no interest in improving the relations with the USSR or the other socialist countries, in detente in general, or in the creation of completely equal and mutually advantageous cooperation. The history of the development of the foreign-economic ties between East and West in recent years indicates that, despite the operation of the objective laws that dictate to the western countries the necessity of expanding their economic cooperation with the CEMA countries, the national systems of state-monopoly capitalism carry out, with the coordination of an inter-imperialistic strategy, various trade-policy measures which are hampering the intensification of those ties with the socialist countries.

At the same time, the prospects for the development of economic relations between states with different social systems seem to be extremely broad. The present-day stage in the improvement and optimizing of the ties in the worldwide economy are also making demands upon the most rapid solution of our intra-economic problems of increasing the effectiveness of production, improving the quality of articles, creating export resources, and resolving a number of organizations questions involving the improvement of the entire foreign-trade activity of the society of mature socialism.

The development and improvement of new forms of foreign-economic activity between the CEMA countries and the developed capitalist states attest to the fact that the expansion of this cooperation is not a situational policy of the socialist countries, but, rather, an objective natural law underlying their political and economic development, an expression of their self-interestedness in the consolidation of the material basis of peaceful coexistence. Lying at its basis is the course aimed at the implementation of the economic strategy of the CPSU and the fraternal communist and workers' parties, at the guaranteeing of the long-range plans for the economic development of the Soviet Union and the other CEMA countries, the reinforcement of the might and solidarity of the states in the socialist community, and the successful development of socialist economic integration.

FOOTNOTES

1. See "Vneshneekonomicheskiye svyazi Sovetskogo Soyuza na novom etape" [Foreign-Economic Ties of the Soviet Union at the New Stage], Izdatel'stvo Mezhdunarodnyye otnosheniya, 1977, p 167.

2. See K. P. Ovchinnikov, "Ekonomicheskoye sotrudnichestvo: effektivnost' i perspektivy" [Economic Cooperation: Effectiveness and Prospects], Izdatel'stvo Mezhdunarodnyye otnosheniya, 1977, p 15.

3. See PRAVDA, 6 December 1978.

4. In this regard Yu. Shiryayev justifiably notes, "Present-day practice confirms the insolvency of any forms of 'foreign-trade fetishism,' and indicates that foreign trade is by no means some kind of mystical sphere which is capable of taking an ineffective production entity that is backward from the point of view of the modern state of productive forces, and converting it into an effective and technically advanced production entity" (Yu. S. Shiryayev, "Mezhdunarodnoye sotsialisticheskoye razdeleniye truda" [International Socialist Division of Labor], Izdatel'stvo Nauka, 1977, p 26).

5. See MIROVAYA EKONOMIKA I MEZHDUNARODNYYE OTNOSHENIYA, No 2, 1978, p 30.

6. See VNESHNYAYA TORGOVLYA, No 5, 1976, p 7.

5075
CSO: 1823

INTERNATIONAL ECONOMIC RELATIONS

GAS PIPELINE IN SIBERIA: UNITED STATES, JAPAN, USSR AGREE ON OL'GA ROUTE

Tokyo ASAHI SHIMBUN in Japanese 26 Apr 79 p 4

/Text/ On the 25th the Japan-USSR Economic Committee (Japan's delegate is Kasao Nagano, head of the Japan Chamber of Commerce) disclosed that Japan, the United States, and the Soviet Union have reached agreement to adopt the "Ol'Ga route" as the route for transporting natural gas from the Yakut gas fields in Eastern Siberia. Aimed at beginning operations in 1985, this agreement is a major breakthrough in what had become a major obstacle to development of these fields. By accepting this, the Soviet Union agreed to complete surveys of the size of the gas fields by next spring to make sure they contain the 1 trillion cubic meters necessary for development, to hold a trilateral conference next June or July in Leningrad (the United States and Japan will be represented by private groups), and to cooperate in the actual development process after the prospecting stages such as with the actual drilling and pipeline construction.

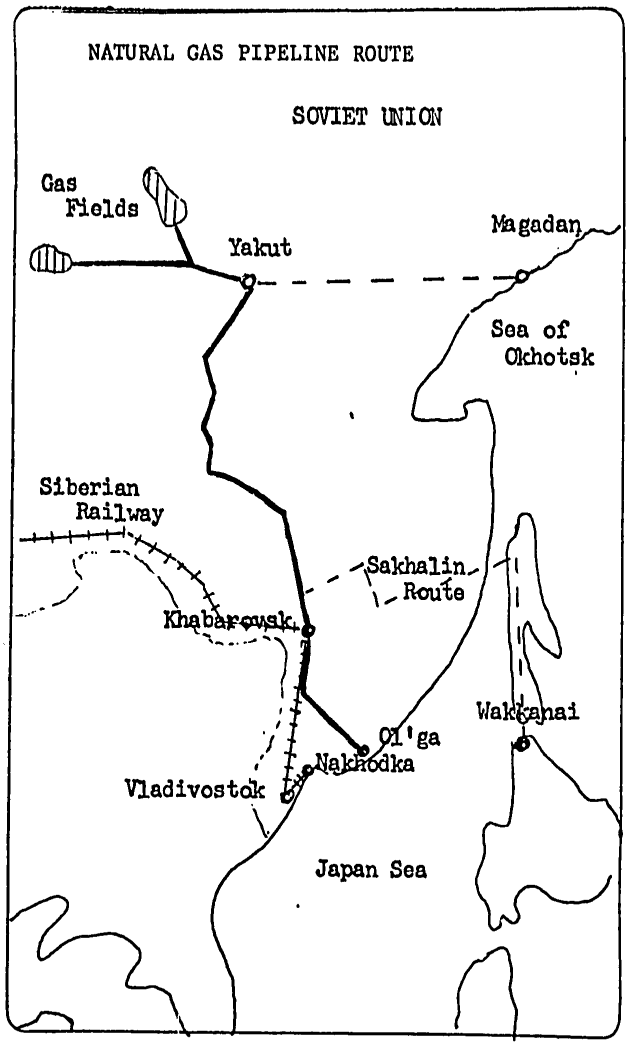
This project is a joint venture by the three countries of Japan, the Soviet Union, and the United States. The Japanese participant is the Natural Gas Commission from the Japan-Soviet Economic Committee (headed by Koh Yasuda, president of Tokyo Gas Co., Ltd.), the U.S. participant is the Siberia Natural Gas Company (headed by Howard Boyd, chairman of the El Paso Company), and the Soviet Union participants are from its Foreign Trade Ministry. This project is the largest of all joint Japanese-Soviet economic cooperation ventures in progress at the present time. It will supply the United States and Japan each 10 billion cubic meters of gas yearly (7.5 million tons) over 25 years starting in 1985.

Even though natural gas accounts for almost one half of the energy resources of Tokyo Gas, they only import 3 billion cubic meters per year now, and so the plan is for the extra to be supplied to other municipal gas companies, power companies, and the steel companies. If only from the viewpoint of the problems associated with oil and atomic energy, Japan has great expectations for Yakut natural gas. Because the just under 1 billion dollars estimated for development will be provided half each by U.S. and Japanese bank loans (inter-bank), and Japan and the United States will provide the pipe and excavation equipment, the pipeline will mean a great increase in the amount of Japanese-Soviet trade.

Already reserves of 825 billion cubic meters were verified last May, and it was anticipated that reserves of 1 trillion cubic meters would be confirmed this year. However, at the trilateral conference held in the United States last month, there were no reports of gas beyond those of last May. However, according to the Japanese-Soviet Economic Committee, this was because 1) prospecting was greatly delayed by unusually adverse weather, and 2) since U.S.-made computer equipment essential for the operations fell under the classification of strategic goods, considerable time was required to obtain export approval. The computer was finally delivered in February, and even though they will be set back half a year from the original schedule of confirming the 1 trillion cubic meters, leaders are confident that this poses no problems.

Rather, the thing that became the biggest headache was selection of the route for transporting the gas. Last year, the Soviets proposed a study be made of changing the original route (the Ol'ga route, 3,523 kilometers long) to either the shorter "Magadan route" (2,155 kilometers) or the "Sakhalin route," which would also make possible transporting gas from the Sakhalin continental shelf (3,947 kilometers).

Because Japan has favored the Ol'ga route from the beginning, "The past year of studying the Soviet proposals has been a very trying period (Chairman Yasuda)." In the end, however, the Soviets and the United States agreed with Japan's claims that 1) the Magadan route was too far north, posing severe problems with ocean transport in winter, and 2) there is no suitable place to construct a liquefaction plant and shipping terminal around Wakkanai City in Hokkaido, and it would be impossible to build a pipeline through Hokkaido. Accordingly, it was agreed to construct a liquefaction and shipping base at Ol'ga north of Nakkodka.



9180
CSO: 4105

INTERNATIONAL ECONOMIC RELATIONS

CEMA COOPERATION IN AGRO-INDUSTRIAL SPHERE DISCUSSED

Moscow VOPROSY EKONOMIKI in Russian, No 5, May 79 pp 154-155

[Article by Yu. Schintyapin: "Cooperation by the CEMA Countries in the Agro-Industrial Sphere"]

[Text] In October 1978 the CEMA International Institute of Economic Problems of the World Socialist System hosted an international coordination conference on the problems of a further deepening of the international division of labor in the agriculture and food industry of the CEMA countries. Representatives from the People's Republic of Bulgaria, the Hungarian People's Republic, the GDR, the Mongolian People's Republic, the Polish People's Republic, the USSR and the Czechoslovakian Socialist Republic and workers from the CEMA Secretariat and the International Institute of Economic Problems of the World Socialist System took part in the conference.

There was a discussion of a number of problems of the development of the international socialist division of labor in agriculture and in the food industry in the CEMA countries and of the questions of coordination and of the methods of conducting research on the problems of international specialization and cooperation in these fields during the years 1979-1980. Reports and addresses were heard on the following issues: The development of the international socialist division of labor in the field of the agriculture, food industry, and in the agro-industrial sphere as a whole of the CEMA countries; the prospects for the agro-industrial integration of the commonwealth; the international socialist division of labor and the specialization of the agriculture of individual countries; international trade in agricultural and food products among the CEMA countries and the capitalist countries; the development of the production of the basic means of mechanization for the agriculture of the socialist states, and others.

The conference participants adopted a program of joint research. It was found to be advisable to carry out joint development work in the future in the following directions: the state of the food problem in the CEMA countries and the ways to solve it; the present level of the

development of the material-production base of agriculture and the food industry and the tasks of cooperation among the CEMA countries; the forms and methods of cooperation and the ways to improve them; and an improvement of the economic mechanism of cooperation in the agro-industrial sphere of the CEMA countries.

The wish was expressed at the conference to enlist the appropriate national institutes as co-executors in joint research on a defined range of problems and that the functions of coordinating organizations in this research be taken upon themselves by the CEMA International Institute of the Economic Problems of the World Socialist System and the Institute of Economics of the World Socialist System of the USSR Academy of Sciences. Especial attention was directed toward the necessity for a wider exchange between national institutes of economic information connected with this topic.

The participation in the conference by representatives by the CEMA Secretariat was especially useful and in the future there should be an expansion of cooperation between the International Institute of the Economic Problems of the World Socialist System and the appropriate divisions of the CEMA Secretariat (agriculture, the food industry, machine building, chemistry, and foreign trade).

It would be useful to agree on the creation of an international collective for the preparation for a joint scientific report on the topic of "An Analysis of the State of and Possibilities for Deepening the International Socialist Division of Labor in the Agro-Industrial Sphere of the CEMA Countries."

A decision was made to enlist the appropriate institutes of the Socialist Republic of Vietnam, the Republic of Cuba, and the Socialist Republic of Romania to participate in the solution of this problem.

2959
CSO: 1823

MANPOWER: LABOR, EDUCATION, DEMOGRAPHY

TRAINING WORKERS FROM CENTRAL ASIA

Moscow VOPROSY EKONOMIKI in Russian No 5, May 79 pp 84-91

[Article by M. Orazgel'dyyev, Ashkhabad: "Training Personnel from the Local Population of the Central Asian Republics"]

[Text] During the modern phase of communist construction, the qualitative factors in economic development are becoming especially important. This applies equally to the labor force; to a great extent, the rate of growth in public production and an increase in its efficiency are dependent upon the level of work force utilization. The correspondence between the primary units of productive forces--between the labor force and the means of production--is a necessary condition for accelerated development of public production. The contemporary period is characterized by an accelerated rate of scientific and technological progress which is levying increased demands on the qualitative characteristics of employees, primarily on their level of education and specialized training.

The decisions of the 25th CPSU Congress assigned the mission of increasing the training of skilled personnel from the local population. This provision is extremely important for the Central Asian republics where the problem of supplying local nationals for the new enterprises has not been solved.

The improvement in manpower quality via training of skilled personnel--including those from the local population in the Central Asian republics as well as in other regions of the country--is based upon a wide network of higher and secondary educational institutions, schools, vocational-technical schools and also upon training directly at enterprises and kolkhozes. The scale of personnel training has been intensively expanded, especially in recent years. The number of specialties and vocations for which skilled workers and specialists are being trained has also increased. At present, personnel are being trained in 164 specialties in the higher educational institutions and secondary specialized educational institutions of Turkmenia

alone as compared to 138 in 1964. In Kirgizia, higher educational institutions are training highly skilled personnel in 86 specialties and secondary specialized institutions are training personnel in 120 specialties. A significant number of well-trained workers and highly-skilled specialists are being brought into the different sectors of these republics' national economies on an annual basis.

As a result, the significant increase in the educational level for the entire population, including workers, should be pointed out. Thus, by the beginning of 1976, there were 779 people with a higher and secondary education per 1,000 of those employed in the Uzbek SSR; the figure was 763 for the Kirgiz SSR, 737 for the Tadzhik SSR and 795 for the Turkmen SSR.

Based on the increased educational level and the modernization of equipment and production techniques, the number and percentage of skilled workers is constantly increasing and worker skill levels are also increasing. From 1960 through 1973, the percentage of skilled workers in the Uzbek SSR's industry increased from 43.3 to 59.1. According to the data from a one-time estimate of the vocational composition of the work force, the percentage of skilled and highly skilled workers (workers in the third category or higher) in Turkmenia's industry was 62.4 in 1972; it was 65.8 in construction, 72.4 for railway transportation and 43 percent in communications. The kolkhoz workers' level of general and vocational training also increased noticeably.

The change in the ratio between physical and mental labor is the most important indication of the qualitative improvement in the work force. Thus, the number of people primarily employed in physical labor as a percentage of total people employed in the Central Asian Republics declined from 83.2 percent in 1959 to 76.2 percent in 1970. Moreover, skilled personnel, including those from the local population, are being trained at a higher rate than the national average. National cadres of skilled workers and specialists have been created in all the Central Asian Republics; they comprise a significant part of the people employed in the national economy. Local national blue and white collar workers presently make up more than 52 percent of the total number of workers and specialists employed in the national economy in the Uzbek SSR.

In spite of the success which has been achieved, the degree of qualitative development in manpower resources and the work force's level of general and specialized training--especially for cadres of local nationals--do not meet the modern demands of a quickly-growing national economy in the Central Asian republics. Therefore, on the one hand, the national economy's

requirements for manpower are not being completely met in these republics and, on the other hand, the population's requirements are not being met at work. With the significant reserves of unused manpower, a number of the national economy's sectors, primarily industrial sectors, are systematically experiencing personnel shortages.

It should also be pointed out that the level of skilled workers in the Cental Asian republics is still lower than the national average; this is indicated by the workers' lower average grade category in all the industrial sectors. Due to the insufficient level of development in the work force, especially its level of vocational training, the labor of a certain part of the able-bodied population is not being used in the Central Asian republics. These republics have the highest percentage of the able-bodied population not employed in public production in the country. Thus, this index is presently over 17 percent in Turkmenia. Of course, to a great extent, this situation is caused by the indigent population's high fertility and large families; however, as shown by the data from a random sample of the unemployed and also by the material from the 1970 Census, it is precisely the insufficient level of training which is one of the primary reasons for the able-bodied population's relatively low level of employment in public production. Therefore, increasing the level of general and vocational training is a very important condition for drawing the unemployed into public production.

Current production capacity is not being completely used due to poor manpower training. The figures for work shifts are presently low in the industries of these republics; moreover, a downward trend is observed in them. The shortage of skilled personnel and specialists is the primary reason for this.

Thus, the insufficient development of manpower in this region leads to significant losses in public labor and to under-utilization of production capacity; it has a negative effect on increasing the efficiency of public production.

Low geographical, vocational and social mobility is characteristic of the population of the Central Asian republics, especially the rural population. Again, the relatively low level of general and specialized training is one of the primary reasons for this. The creation of national cadres, including workers for industrial sectors, is still the most important, contemporary problem for generating manpower in these republics.

In spite of the increased level of vocational training for the work force, the local population's industrial work skills are still insignificant; this is indicated by the low percentage of national

cadres in the national economy's industrial sectors. The percentage of national cadres in the Uzbek SSR's industry is more than 1.6 times lower than the percentage of the local population to the republic's total population. With a percentage of indigenous population to total population of 65.6 in Turkmenia, their percentage among those employed in industrial sectors was 36.7 percent as of 1 June 1973; this included 35.5 percent in industry, 37.7 percent in construction, 34.8 percent in transportation and 37.4 percent in communications. This is explained to a certain extent by the disparity between the geographical location of the industrial sectors and the places where the indigent population lives, as well as by current national traditions. In rural areas and in the small and medium size cities where the indigent population primarily lives, the level of development for industry and other industrial sectors is relatively low. Personnel are hardly trained at all for industry and other industrial sectors in the majority of the small and medium size cities or in the rural vocational-technical schools; therefore, young people from the country do not have sufficient industrial work skills and they do not serve as a source of manpower for non-agricultural sectors. Thus, with significant reserves of manpower resources in Turkmenia, especially in rural areas, elements of the Interkolkhoz Construction Association are experiencing manpower shortages.

An increase in the level of general and specialized training will play a large role in the intensive transition to non-agricultural sectors by the indigent population of the Central Asian republics. Numerous data attest to this fact. First of all, the educational level of the rural population--the overwhelming majority of which are people from the indigent nationalities--is a great deal lower than the corresponding level for the urban population. According to the 1970 Census, per 1,000 people employed in the national economy of the Central Asian republics, there were 123 people with a higher and incomplete higher education and 123 people with a secondary specialized education among the urban population; the respective figures for the rural population were 44 and 45, or 2.7 times smaller.

Like all the other people of our country, the people of Central Asia have achieved a great deal of success in mastering the Russian language. Data from the 1959 and 1970 censuses show that the percentage of Uzbeks, Kirgiz, Tadzhik and Turkmen who called Russian their native or second language increased during the period between the censuses. The entrance examinations to higher and secondary specialized educational institutions also indicate an improvement in Russian language instruction in the schools and they indicate a steady increase in young

people's level of knowledge. However, a poor knowledge of Russian is still an important cause of the low rate of people moving from the country to the city.

A further improvement in Russian language instruction, especially in rural schools, is required in the interest of increasing the local population's social and geographical mobility and in the interest of efficiently redistributing the population between the country and city. Evidently, there will be increased training of young people from Central Asia as skilled personnel and specialists in other areas of the country in the future; this will also bring about a further improvement in Russian language instruction.

It should be pointed out that, under the conditions in the Central Asian republics, population migration from the country to the city is not as important in itself as is creating conditions to improve the rural population's mobility based on changes to its lifestyle. This primarily presupposes inculcating the indigent population with a broad range of industrial work skills and getting it used to non-agricultural work. Evidently, a solution to this urgent and complex problem should be based upon setting up physical facilities to acquire industrial work skills in the localities--locating industries and industrial types of production in rural areas and in small and medium size cities, introducing mechanization of agricultural production, widely developing agro-industrial integration; increasing the scale of personnel training, bringing the network of educational institutions closer to the places where rural young people are concentrated, increasing the number of "urban" vocations; and increasing economic incentives for the indigent population to transfer to non-agricultural, industrial sectors.

In recent years, a certain amount of work has been done in the Central Asian republics to bring industrial production closer to rural areas and to small and medium size cities. However, the practice of primarily locating industrial production and economic and cultural facilities in major cities is still dominant; this leads to difficulty in manpower utilization. Under these conditions, there is an acute need to locate industrial enterprises on a more widespread basis in small and medium size cities where there are significant reserves of manpower. When systematic training is being set up for the unemployed and when manpower freed from agriculture is being retrained for non-agricultural sectors, including industrial enterprises, these manpower resources can be replenished with cadres of workers from the local population.

Of course, the siting of productive forces is accomplished by not only considering the effect of the labor factor but also by considering the effect of a number of other factors: the existence of a raw material base, power and water resources, etc. However, the development of power engineering and transportation has reduced the dependence of siting production on these factors; as scientific and technological progress develops, this trend will increase. Therefore, the presence of manpower resources is presently the primary, determining factor in siting production in Central Asia.

Industrial production can be developed in the small and medium size cities and in rural areas of the Central Asian republics via processing of agricultural produce and the construction materials industries; there are local raw materials and the possibility of an unlimited market for setting up and developing these sectors. However, the volume of production for the light, food and a number of other industrial sectors should not be limited to local demand; they can also include supplying the requirements in other areas of the country. The development of these enterprises and small industries will not only make it possible to draw significant contingents of the able-bodied population into public production but they will also make it possible to make more complete and efficient use of these republics' very rich natural resources and climatic conditions. By drawing new, irrigated land into agriculture, the Central Asian republics can become a major food and vegetable center for the country, a center which supplies the central part of Russia, the Urals, Siberia and the Far East with fresh fruit and vegetables as well as produce processed from them.

The development of enterprises from sectors of Group B in the localities will not only be of economic importance but also of great social importance--it will facilitate the swift and efficient development of industrial work skills among the indigent population and it will increase its mobility. Developing and siting enterprises which are simple technologically--this is the way to create conditions for more widespread development of complex production: machine building, radio equipment, instrument making, electronics and other sectors.

With contemporary conditions in Central Asia--where the population still does not have a high degree of mobility--it would be advisable to proceed with the construction of small enterprises in the localities and also with locating branches and individual shops of major industrial enterprises there.

However, preferential location of new construction in rural areas does not solve the problem of stimulating the rural population to

relocate in cities. A high natural increase in rural population, freeing manpower from agriculture due to increased labor productivity, the demand for manpower in cities, etc. are the primary factors which induce people to relocate from the country to the city. This problem will become more critical in the future since the process of freeing people employed in agriculture will noticeably increase.

The indigent population is distinguished by its high level of acclimatization to the region's cities. Thus, in Kirgizia, the degree of acclimatization for the Kirgiz who came from rural areas to the republic's cities is almost 25 percent higher than the average for all migrants and 56 percent higher than that for the Russians and Ukrainians who came here. In the Turkmen SSR, the level of acclimatization for the new settlers from the republic's countryside is 15-20 percent higher than that for settlers from rural areas in other republics.

Preliminary vocational training for the rural population in "urban" vocations both in localities and by sending young rural people to urban vocational-technical schools and also to courses of instruction at enterprises by granting them certain privileges and economic incentives is one of the most important conditions for increasing the intensity of relocating people from the country to the city. However, the current scale of personnel training in Central Asia does not completely support the national economy's requirements for skilled manpower. In the Central Asian republics, a large gap has now appeared between the number of young people who are entering the able-bodied age and their opportunities for specialized and vocational training. Thus, the number of young people annually reaching able-bodied age in Uzbekistan and Turkmenia presently exceeds the possibility of being accepted by an educational instution by a factor of approximately three.

In the interest of increasing efficient utilization of manpower resources and of providing a more complete supply of skilled manpower for the national economy, all the young people reaching able-bodied age should be involved in some form of specialized or vocational skill training.

Technological progress is advancing more and more new requirements on the forms and methods for training and retraining personnel. Experience shows that skilled workers are usually trained at fixed educational instutions and at vocational-technical schools, especially schools which provide a secondary education. The number of students studying in the secondary school curriculum was 48.6 percent in the Uzbek SSR and 45.9 percent in the Tadzhik SSR in 1977. This figure was 40.6 percent for Turkmenia in 1975.

The necessary conditions are being established to accomplish an enormous socio-economic task--universal secondary education.

In contrast to many areas, all sources of additional manpower for non-agricultural sectors are very important in the Central Asian republics--young people reaching able-bodied age, the able-bodied population employed in domestic and private subsidiary farming and drawn into public production and the able-bodied population freed from agriculture. In connection with this, it is necessary to set up a differentiated system for training the different categories of the able-bodied population: expanding the existing network of schools, setting up new courses, schools, secondary specialized and higher educational institutions--both for day and evening programs--and bringing them closer to the places where people from the indigenous nationalities are concentrated. It is necessary to increase the acceptance of young rural people, including the young women of the indigenous nationalities, to higher educational institutions and secondary specialized educational institutions by establishing certain privileges for them when they enter.

It is also extremely important to set up training for young working people. In spite of the significant increase in the population's general educational level, a rather large part of the workers only have a primary education. For example, over 31 percent of the young people working in Turkmenia (employed in all sectors of the national economy) do not have a secondary education; 80 percent of them are not involved in evening studies.

The solution to the problem of increasing the level of general and specialized training for young people in the Central Asian republics requires further improvement in the geographical location of educational institutions by considering the low mobility of the indigenous population. Almost all the higher and secondary specialized educational institution are located in the capitals, oblast centers and large cities. At the same time, the network of educational institutions is not sufficiently developed in the outlying areas. Given the poor mobility of the population, this creates difficulties for young rural people, especially for the young women of the indigenous nationalities who have a serious interest in education.

In spite of the fact that young women from the local nationalities make up almost half of the young people annually reaching able-bodied age in these republics, the percentage of them among students of higher and secondary specialized educational institutions

is still extremely low. For Turkmenia, this figure is presently 12.3 percent for students of higher and secondary specialized educational institutions and only 3.3 percent for students of vocational-technical educational institutions. In a number of Central Asian republics, specifically in Turkmenia, young women are saddled with housework. The low level of vocational training for young women and their lack of a specific vocation and specialty are some of the primary reasons for this negative phenomenon in Central Asia.

The number of early marriages is still relatively high in Central Asia; therefore, it is important that young women from the indigenous nationalities obtain a vocation and specialty before they get married, immediately after completing secondary schooling or even before completing it. In this respect, improving the vocational training organization and vocational guidance for young students, especially rural students, is becoming extremely important. The specific conditions of the Central Asian republics dictate the need to introduce vocational education into rural general education schools on a more widespread basis in the near future in order to train students for all the narrow vocations and specialties.

It is possible to teach the popular vocations to students in the senior classes in many of the rural schools in the Central Asian republics. It is evidently necessary to set up training for the vocations of tractor driver, driver, electrician, construction and other workers' specialties required in the national economy on a more widespread basis in rural schools and inter-school polytechnical training centers. Special attention must be devoted to vocational training for young women. In the modern stage of economic development, there is an urgent requirement that worker and specialist training must meet the national economy's pattern of demand for personnel. The current training system in the Central Asian republics does not completely meet these requirements. Primary school education is widely developed in these republics; Central Asia lags behind the other regions of the country in its level of development for other forms of training, especially in specialized and vocational training. The number of students in vocational-technical schools, secondary specialized educational institutions and higher educational institutions per 10,000 population is significantly lower than the national average in the Central Asian republics. In the 1976-77 school year, there were 192 students in higher educational institutions and 179 in secondary specialized educational institutions per 10,000 people for the USSR as a whole; the figures for Central Asia were 161 and 129, respectively. The number of skilled workers trained in (graduated from) vocational-technical educational institutions was 82

for the USSR and 57 for Central Asia in 1976. The number of specialists in the sectors of the national economy in the Central Asian republics is also lower. There were 194 specialists with higher and secondary specialized educations per 1,000 people employed in the country's national economy in 1975. The figure in the Uzbek SSR was 180; it was 187 in the Kirgiz SSR 177 in the Tadzhik SSR and 166 in the Turkmen SSR.

The disparity between the general and vocational specialized educational systems is one of the reasons that, with the reserves of manpower with a relatively high general educational level, the national economy in the Central Asian republics is experiencing shortages in skilled workers and specialist personnel. This can be explained to a great extent by the fact that the overwhelming majority of those completing general education schools are placed in jobs in agriculture and only a small part of them are placed in jobs in non-agricultural sectors. For example, over 70 percent of the people completing general education schools in Turkmenia in 1976 were placed in agricultural jobs.

Meanwhile, the objective conditions (the significant number of young people in the total population and in the working population, the large demand for personnel and the high percentage of unemployed) demand that the level of development for specialized and vocational training should not be lower than the national average in the Central Asian republics.

Improved training for skilled national cadres is also advantageous from the point of view of the national economy--it would reduce expenditures on organizing recruiting and placement of workers from other republics and it would noticeably reduce manpower turnover since the people arriving from the country's other republics and regions are more susceptible to turnover. A sharp increase in training skilled personnel from the local population could lead to a reduction in the flow of manpower from the country's central and eastern regions to Central Asia; the balance of manpower resources in these regions is extremely tense without this flow.

Our conditions which will make it possible for the Central Asian republics to meet the national economy's needs for skilled worker and specialist personnel with its own manpower resources should be established within the next decade. However, this does not mean that personnel training should be set up for all vocations and specialties in this region or in one of the Central Asian republics. It is obvious that, as before, personnel will have to continue to be trained in other regions and republics for individual vocations and specialties where demand is not high.

The practice of sending young people from the Central Asian republics to national construction sites merits serious attention and expansion. This measure should be viewed as a unique form for training personnel in economic regions which have valuable experience in economic and cultural construction.

The increased requirements for a quality work force are bringing about a need to improve several aspects of planning. First of all, the location of new construction requires thorough consideration of the quantitative and qualitative aspects of current manpower resources. Manpower must be trained ahead of time for new industrial enterprises and for economic and cultural construction facilities, before they are brought on-line. Day and evening schools and courses for training personnel rrom local nationalities should be established in cities and regions of new construction. The manpower and facilities of the appropriate national ministries and departments must be brought into this work.

The high natural growth rates in the population of the Central Asian republics raises the issue of the feasibility of using the young people of these republics in other regions of the country in the future. It is obvious that this must proceed in the direction of expanding training for skilled personnel in the Central Asian republics themselves and in the direction of organizing and training skilled personnel from the young people of Central Asia in the areas where they are used. In order to increase the possibilities for young people from the Central Asian republics to enter higher educational institutions, secondary specialized educational institutions and vocational-technical schools in other regions of the country, it is necessary to improve the general educational training of students, especially Russian language instruction, and to expand the preparatory departments at higher educational insitutions.

The age-sex composition of the able-bodied population is a very important index of the qualitative characteristics of the labor force. Sex and age population groups differ in physical data, educational level and degree of vocational and speciality mobility. The sex and age manpower requirements for individual sectors are different. The demand for work for different age-sex groups among the population is also not the same. A consideration of these special features is highly significant in supplying the national economy with manpower and in more fully utilizing manpower resources.

From this point of view, it should be pointed out that the sector pattern of public production has developed successfully

in the Central Asian republics. The most important sectors of the national economy, including industry, which primarily anticipate using female labor (light, food, etc.) have developed sufficiently. Along with this, there will be a great deal of work on further improving the economic structure in a number of cities and regions. Measures to further increase employment for women should provide for an improvement in their working conditions, the gradual elimination of women working on jobs which do not correspond to their psycho-physiological features, expanded employment for women in skilled jobs and widespread organization of vocational training for women.

A more complete utilization of manpower resources and supplying the national economy with manpower presuppose detailed consideration of the special features of the population's age structure, and primarily the ratio between the population's young, middle-aged and elderly age groups. In the future, the number of people employed in the national economy will be primarily increased by young people with sufficiently high education. In order to prevent certain difficulties in supplying manpower for jobs which are least attractive by nature and by working conditions, it is necessary to further improve the structure of production and increase the level of mechanization of manual, unskilled and low skilled jobs. All of this will have a favorable effect on the efficient utilization of manpower resources.

9001
CSO: 1823

MANPOWER: LABOR, EDUCATION, DEMOGRAPHY

INTERNATIONAL SEMINAR OF SOCIALIST DEMOGRAPHERS REVIEWED

Moscow VOPROSY EKONOMIKI in Russian No 5, May 79 p 155

[Article by Yu. Pivovarov: "International Seminar of Demographers of the Socialist Countries"]

[Text] The International Seminar of Demographers of the Socialist Countries was held in December 1978. It was organized by the School of Demography at Humboldt University in Berlin (Professor P. Kalatbari, seminar leader) at the initiative of the working group on demography of the 16th Committee on Problems of Multilateral Cooperation between the academies of science of the socialist countries. Scholars from the Bulgarian People's Republic, the Hungarian People's Republic, the Polish People's Republic, the Socialist Republic of Romania, the Union of Soviet Socialist Republics and the Czechoslovak Socialist Republic participated in it; 26 reports were discussed.

The seminar's primary topic was the relationship between social and demographic processes which are important for solving the following key problems: the theory and laws of population; demographic systems within the hierarchy of real systems; population growth and the environment; and theoretical principles for a demographic policy.

The seminar promoted a widespread and productive exchange of opinions between scholars from the socialist countries on the problems of studying population within the CEMA countries based on Marxist-Lenist methodology; it promoted a solution to the applied problems of building a developed socialist society within these countries (specifically, the development of an effective demographic policy) and it promoted an expansion of scientific contacts and an exchange of the latest information in the field of study of population problems.

As a result of the productive discussion on a broad range of population problems, the seminar participants adopted resolutions reflecting the following conclusions:

1. It is necessary to speed up research on theoretical population problems.
2. The further development of methods for demographic analysis and forecasting of population development is becoming extremely important.
3. It would be advisable to make the International Seminar of Demographers of the Socialist Countries a permanent seminar by organizing it on an annual basis within the CEMA countries.
4. The possibility of setting up an International Scientific Demographic Center for the socialist countries to conduct and coordinate joint bilateral and multilateral research on population should be examined in the near future.

The seminar participants pointed out that the study of theoretical and practical population problems is becoming more and more interdisciplinary and comprehensive in nature within the socialist countries, that is, it requires the joint efforts of demographers, geographers, economists, sociologists and representatives from other sciences.

Cooperation between scholars from the socialist countries in solving a number of similar problems which are being brought to the fore by the construction of developed socialism within individual countries occupies an important place in research on diverse population problems. Therefore, a coordinated effort and an efficient exchange of information between specialists in different sciences on population are required within the framework of the CEMA countries.

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MANPOWER: LABOR, EDUCATION, DEMOGRAPHY

BOOK ON MANPOWER FOR AGRICULTURE REVIEWED

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[Article by M. Vasilenko: "A. B. Soskiyev, 'Vosproizvodstvo i ispol'zovaniye trudovykh resursov sel'skogo khozyaystva' (Generating and Using Manpower for Agriculture), Izdatel'stvo "Kolos", 1978, 204 pp]

[Text] With the intensification of agricultural production, the development of specialization and concentration based on interfarm cooperation and agro-industrial integration and the introduction of industrial means and methods for managing agriculture, the issues of a more efficient organization, training and utilization of manpower are becoming more and more significant. The monograph under review is of interest in this respect; it views the problems of generating and efficiently using manpower and also the problems of creating opportunities for more complete employment of workers and for increasing labor productivity as a package.

In studying regional peculiarities in the organization of the labor force, the author emphasizes that optimal proportions in the distribution of manpower throughout the regions of the country and an optimal sex-age mix are extremely important in making efficient use of manpower. A. Soskiyev points out that it is necessary to consider the development and location of production and also the possibility of supplying manpower for a balanced level of development for the country's national economy as a whole and by regions when planning personnel training. The public interest demands that an efficient level of employment for the population be planned while the work force is being generated, specific workers are being trained and the optimum ratio between workers, engineers and technicians is being determined (pp 47-48).

As a result of the comprehensive analysis of the sex-age structure of agricultural manpower for the union republics and for the

country as a whole and the effect that population migration has on it, the author draws the well-substantiated conclusions that demographic processes play a significant role in the population's level of employment and that a planned regulation of population migration should primarily be based upon a solution to economic problems via an efficient distribution of capital investment, wage funds and public consumption funds. The author's proposals for consolidating personnel in agriculture are of interest in this respect (pp 105-106).

Based on a great deal of factual material, the monograph discusses methodological approaches for determining the levels of utilization and the seasonal nature of agricultural labor; it elucidates the primary factors for an efficient utilization of manpower and it analyzes the use of work time and the seasonal nature of agricultural labor according to different areas of the country. The book devotes special attention to easing the seasonal nature of agricultural labor, intensifying production, organizing work and paying for it. It is emphasized that the level of utilization for the kolkhoz and sovkhoz labor force not only depends upon the supply of land but also upon the structure of valuable agricultural resources and the percentage of labor intensive crops. Attention is directed at the fact that farms with a smaller area of land per worker can make more complete use of manpower. This is a result of many factors; the most important ones are the layout of the area under crops, the intensity of farming, the level of livestock development and its productivity, the level of mechanization for production processes, the degree of development of subsidiary production and handicrafts and others (p 131).

While examining ways to increase the level of employment for kolkhoz and sovkhoz workers on a public farm, the author emphasizes the need to devote special attention to correctly combining sectors and crops and to increasing the intensification of agricultural production in order to evenly spread out the expenditure of labor during the growing season. The work points out that setting up interfarm enterprises and agrarian-industrial associations plays a special role in improving manpower utilization. They make more complete and even use of the work force; labor expenditures per unit of production are lower and, consequently, labor efficiency is higher. The higher level of production concentration and specialization (for example, based on the consolidation of fields and interfarm crop rotation) ensures the efficiency of production processes, an improvement in the utilization of agricultural equipment and an increase in labor efficiency. Under these conditions, it is possible to use machinery for large scale jobs on a broader basis; this causes an increase in the seasonal output for machinery and a decrease in the expenditures of labor and materiel per unit of production.

The fact that the following issue was raised must be considered correct: when evaluating the level of efficiency in setting up interfarm and agrarian-industrial enterprises and associations, it is not only necessary to proceed on the basis of the increased labor productivity and the reduction in production costs, labor intensiveness and the capital-output ratio but also based on the utilization of work time and the equalization of labor expenditures throughout the entire agro-industrial complex.

There are also a number of shortcomings in the work under review. On page 58, the author writes about eliminating "the differences between mental and physical labor." Since the differences between qualitatively heterogeneous types of labor cannot be removed, it would be more correct to talk about eliminating the differences between people engaged in mental and physical labor as V. I. Lenin did. A. Soskiyev uncritically transferred the recommendation of certain scholars to define the irregularity in labor expenditures during the year with the so-called "ratio of seasonal fluctuations" (p 111) to the pages of his book. The deviations between actual monthly expenditures of labor and average monthly expenditures are usually used as the initial data to calculate this ratio. However, these deviations can be positive and negative (the law of the arithmetical mean). Moreover, quantitatively, they are equal to each other; therefore, by observing basic mathematical rules when adding them, their sum will be zero.

On page 167, the author writes that "a better supply of agricultural equipment for farms noticeably reduces the irregular utilization of manpower during the year." However, this assertion is only true for the initial stages of agricultural mechanization. The latest studies (N. A. Korobov, Ch. K. Tanov) have shown that comprehensive mechanization and automation of agriculture sharply reduce the working period and it does not have a significant effect on the length of the production period. The difference between these periods signifies an exacerbation of the seasonal nature of agricultural labor. Therefore, in the final analysis, comprehensive mechanization and automation reinforce the need to carry out measures to overcome the seasonal nature of agricultural labor; agro-industrial integration is the decisive measure.

However, the book's shortcomings are particular in nature. Overall, the work was written at the required scientific and theoretical level and it is of practical interest for agricultural specialists; it will also be beneficial for employees of scientific institutions, agricultural agencies and planning agencies.

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